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Original Research Article

PERSONALITY TRAITS OF FIRST YEAR UNIVERSITY MEDICAL STUDENTS: AN EMPIRICAL EXPLORATION

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ABSTRACT

Background: Since there have been studies on personality traits of medical students but none of the study focused on both qualitative and quantitative assessment through baseline information and standardized tool. The study investigates personality traits of first year MBBS students of Islamic International Medical College, Riphah International University, Islamabad. Personality traits were assessed with demographic factors (gender, place of residence, physical exercise).

Materials and Methods: This is a cross-sectional study of first year medical students assessed by NEO-PIR inventory during their first pre-clinical year. 100 students entered into the medical college. Of these, 93 (93%) completed the NEO-PI-R (i.e. a measure of the Five-Factor Model of Personality i.e. Openness to Experience, Conscientiousness, Extraversion, Agreeableness and Neuroticism).

Results: Results revealed that girls reported better communication with parents as compared to boys. Boys reported that they face fewer problems as compared to girls while making decisions of life. Girls scored significantly high on extraversion as compared to boys not only across gender but also across residence and mode of exercise (strenuous, moderate, and mild).

Conclusion: The interpersonal dynamic explained by extraversion, may be beneficial for doctors' in future professional practice, communication skills, and collaboration. Academic career is affected by extraversion and can be reliably assessed at start of medical career. In the study of student counseling and guidance, assessment of personality can be a useful instrument.

Keywords: Personality traits, communication with parents, extraversion, counseling, and guidance

INTRODUCTION

The personality of medical students has been well studied, including its relationship to student selection, career choice and academic performance.[1,2] Latest research evidences revealed that individual non-cognitive qualities that are measured at start of medical profession can predict significant professional and interpersonal behavior of medical students.[3] Latest models of health and personality are recognized by multiple pathways that include both physiological and behavioural mechanisms of personality that contribute to enduring health outcomes.[4] Across adulthood, these same mechanisms may also contribute to changes in personality.

Some personality traits are important for success, performance, adjustment, and psychological as well as physical health of medical students. Apart from physical exercise, researchers have also found the

role of parents, family, and friends in influencing one's personality. Research shows that those having better communication pattern with parents are found to be high on extraversion, openness, and conscientiousness.[5] The various characteristics in the trait of extraversion emphasize achievement and qualities are necessary in the medical field as it is quiet demanding and stressful field. Efficiency, determination, and diligence are important characteristics for better performance of medical doctors as well as medical students.

Psychological effects of physical fitness and exercise have been documented by thousands of articles.[6] Relatively few, while widely accepted, well-designed studies supported the proposed psychological benefits.[7] Recently, however, some studies have begun to substantiate some of these reported psychological benefits of exercise and fitness.[8] But none of the previous studies worked on effect of exercise on personality of medical students. The present study attempted to fill this gap.

Furthermore, research has also found that the Conscientiousness is the significant predictor of academic achievement among medical students and, together with Extraversion and Neuroticism, it may contribute to the lack of decision making and vulnerability to psychological stress.[9] One most important factor that is related is the type of degree offered by the medical college. Most of the Pakistani Medical Colleges offer undergraduate MBBS degree to medical students (entry straight from high school). Although investigation into the choice of career has a degree of consistency in terms of the influence of personality.[10] how gender and other demographic factors affects this process is not clear. Nonetheless, there may be personality differences between individuals those who enter into the medical college as undergraduates compared to those who are postgraduate students, for instance the post graduate students, have been exposed to the broad range of university degrees so they are more on the personality trait of openness to experience than those who left schools (entry to undergraduate program).

Analysis of personality differences requires a standardized instrument. Personality has been measured from many different self-reported methods. This variation in the measures and theoretical approaches resulted in the lack of consensus in the field. However, in the 1997 Costa & McCrae developed a model based on three factors – Openness to experience, Neuroticism, and Extraversion but later on added two more factors, Conscientiousness and Agreeableness. The most accepted model of personality in the field of personality psychology is five factor model and the NEO test is an instrument that has widely been used in research and practice to measure personality traits of individuals.[11]

To date no study has been conducted in Pakistan that analyzed personality traits of medical students particularly at start of their medical career. Moreover, none of the medical related studies used both qualitative and quantitative assessment for analyzing personality traits among medical students. As such choosing students with the right personality is important in ensuring their suitability for medical schools since they are future doctors. The objectives of the present study were to assess the personality traits of first-year medical students, compare personality traits between day scholars and hostel residents, and examine differences in personality traits among students engaging in different levels of physical exercise, categorized as strenuous, moderate, and mild.

MATERIALS AND METHODS

This is a cross-sectional study using NEO-PIR inventory. Participants for this research were 93 first year medical students from International Islamic Medical College who were selected by convenient sampling procedure. 23 boys and 60 girls participated in the study. Their age ranged from 17- 24 years (M = 19.20, SD = 1.02). One factor that is of major focus is unequal number in men and women. As a profession, girls choose more medical related studies as compared to boys because studies have found that girls are high on empathy and more eager to work in helping professions like nursing, doctors etc. as compared to boys.[12]

Physical exercise, decision taking, and communication with others have a strong influence on one's personality. Hence, few questions were asked from participants as a baseline assessment. Rate of exercise was analysed by asking the participants, "how would you rate your level of exercise"? (Strenuous, moderate, or mild). Pattern of communication with parents was analysed by asking the participants, "how would you rate your pattern of communication with parents"? "Never", "almost never", "sometimes", "often", and "very often"). Finally, decision making was assessed by asking them, "Do you find that you have lack of decision making"? "Never", "almost never", "sometimes", "often", and "very often").A user friendly and concise instrument to measure one's personality is NEO Personality Inventory-Revised.[11] that has been used in the current study. Uniformity of use across different samples, a major advantage of the five scales NEO-PIR, was confirmed by studies using a two-week reliability retest.[13] Other than the self-administration by participants, one of the major advantages of the NEO-PIR is that analysis does not require the researcher to have formal professional training in clinical psychology, personality analysis, or other related fields of clinical psychology. NEO-PIR along with demographic information was obtained only after written consents from the University. Participants were ensured about confidentiality. The data were analyzed using graphs, t-test and one-way Analysis of Variance.

RESULTS

[Figure 1] shows the communication of boys and girls with their parents. It is clearly depicted in the graph that girls have reported comparatively better communication with their parents as compared to boys. Similar patterns are also revealed by students when they were asked about their relationship with friends and family.

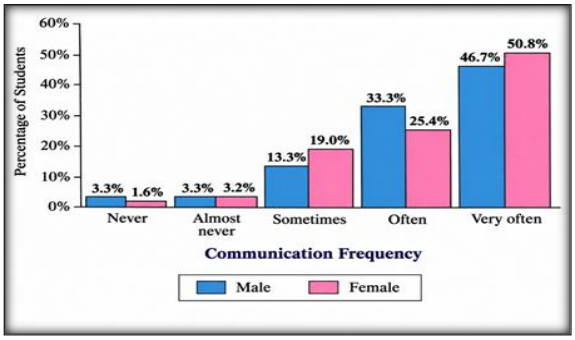

Figure 1: Percentage distribution of male and female first-year MBBS students according to their self-reported frequency of communication with parents. Responses were categorized as never, almost never, sometimes, often, and very often.

[Figure 2] reveals significant differences across male and female students on "lack of decision making". It is evident from the graph that female participants reveal lack of decision making more than male participants. Although male participants are quiet less in number as compared to female participants but they reported same willingness on the category "sometimes" and "Almost never" when asked about lack of decision making in life. This means that male members face very little problems when it comes to decision making while female students scored highest on the category of "sometimes" showing that they face many problems in decision making and lack effective power and courage to make decisions in life fruitfully.

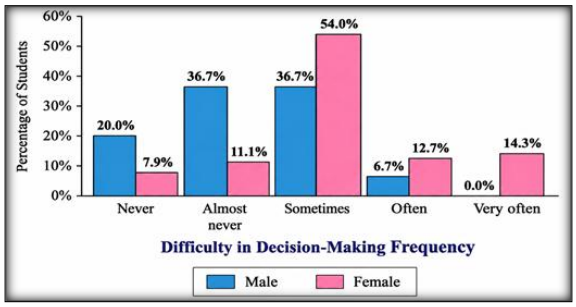

Figure 2: Percentage distribution of male and female first-year MBBS students according to their self-reported frequency of difficulty in decision-making, categorized as never, almost never, sometimes, often, and very often.

Research evidence show that lack of decision making is linked to low score on conscientiousness and high on neuroticism. [11,13] Better communication with parents and improved relationship are linked with high level of extraversion among girls as compared to boys.[14] But before reaching to any conclusion, it is essential to use standardized measure to assess whether these traits are present in medical girls in increased rate as compared to their male counterparts. For fulfilling this purpose, our study utilized NEO-PIR inventory.[11] to analyze different personality traits among male and female medical students.

Table 1: Mean differences across gender (N = 93).

Variables	Gender					
	Men n = 23		Women n = 60			
	M	SD	M	SD	T(91)	P
Neuroticism	33.83	5.70	36.04	7.24	1.46	>0.05
Extraversion	39.63	5.02	41.65	9.84	1.30	≤ 0.05
Openness	36.10	5.30	38.53	5.01	2.15	>0.05
Agreeableness	39.36	3.22	39.39	4.50	.03	>0.05
Conscientiousness	41.30	4.93	45.17	5.39	3.32	>0.05

[Table 1] shows the results of differences across gender among five domains of personality. Significant differences are found on the construct of extraversion where female students scored high as compared to male students. This means that girls in medical profession are high on extraversion as compared to the boys of medical studies. While on all other domains of personality, although girls are scoring high than boys but the difference is non-significant in each case.

Table 2: mean differences across level of exercise (N = 88).

Variables	Exercise						
	Strenuous exercise n = 18		Moderate exercise n = 36		Mild exercise n = 34		
	M	SD	M	SD	M	SD	F
Neuroticism	35.66	7.33	34.75	7.56	35.35	6.15	0.12
Extraversion	46.27	15.18	39.22	5.95	40.32	5.32	4.39*
Openness	37.61	5.72	39.30	5.01	36.44	5.05	2.69
Agreeableness	40.27	4.22	39.66	3.80	38.58	4.53	1.10
Conscientiousness	44.88	5.75	44.27	5.50	43.61	5.70	0.31

[Table 2] shows mean differences across level of exercise in the various facets of personality. Significant differences are found on the construct of extraversion. In order to look into the construct that which group scored higher, post hoc analysis was conducted using bonferroni method. Post hoc reveals individuals who practice strenuous level of exercise scored high on extraversion as compared to those who practice moderate level of exercise [i – j = 7.05*; SE = 2.44, 95%; CI (LL = 1.08, UL = 13.02)].

Table 3: Mean differences across day scholars and hostelites (N = 91).

Variables						
	Hostelite n = 36		Day scholar n = 55			
	M	SD	M	SD	T(89)	P
Neuroticism	36.94	6.74	34.25	6.86	1.84	>0.05
Extraversion	38.02	4.65	42.67	10.03	2.97	≤ 0.05
Openness	37.11	5.33	38.25	5.17	1.01	>0.05
Agreeableness	37.75	4.07	40.29	3.78	3.03	>0.05
Conscientiousness	42.61	5.39	44.74	5.52	1.81	>0.05

[Table 3] shows results of T-test across hostelites and day scholars. Day scholars score high on extraversion as compared to medical students who are residing in hostels. While non-significant differences are found on all other domains of personality.

DISCUSSION

Personality characteristics play an important role in shaping individual behaviour, interpersonal relationships, emotional responses, and adaptation to different social and professional environments. These characteristics are particularly relevant to medical students, who must develop academic competence alongside effective communication, emotional resilience, and professional responsibility. Previous research has highlighted the importance of personality traits in medical education and their potential association with long-term academic and professional success.[9] Furthermore, social and psychological factors, including family relationships and interpersonal experiences, may contribute to individual differences in personality and social behaviour.[14] The present study explored personality traits among first-year MBBS students and examined their relationships with gender, communication with parents, self-reported decision-making difficulties, physical exercise, and residential status.

The baseline assessment revealed differences between male and female students in their reported communication with parents and difficulties in decision-making. Female students reported more frequent communication with their parents, whereas male students generally reported fewer difficulties in making decisions. These findings suggest that patterns of family interaction and perceived decision-making difficulties may vary between male and female students. However, the frequency of communication does not necessarily reflect its quality, and self-reported decision-making difficulties should not be interpreted as an objective measure of decision-making competence. Family communication patterns may influence the development of interpersonal confidence and social engagement, although the nature of these relationships may differ according to individual experiences and sociocultural circumstances.[14]

The observed differences in decision-making difficulties may also be considered within the broader context of socialization and upbringing. In some sociocultural environments, boys and girls may experience different expectations regarding independence, responsibility, and participation in family decisions. Such experiences may influence their confidence in expressing preferences and making independent choices. Nevertheless, these explanations remain hypothetical because parenting practices and gender-role expectations were not directly assessed in the present study. From a personality perspective, conscientiousness is associated with self-discipline, responsibility, organization, and deliberation, whereas neuroticism reflects a greater tendency to experience anxiety, uncertainty, and emotional distress. These personality dimensions may be relevant to how individuals approach challenging decisions, although their relationship with decision-making difficulties requires direct investigation. [11,13,14,15,16]

One of the significant results of this research was the high mean score of Extraversion among female students than male students. Extraversion is a personality trait that is characterized by sociability, assertiveness, enthusiasm, activity, and a preference for interacting with others. [11,15] The difference between the two may suggest that female students in this sample had a greater tendency towards social interaction and interpersonal expression. This is also consistent with their self-reported level of communication with parents. Extraversion must however be differentiated from other personality traits, such as agreeableness, which is more closely related to co-operativeness, compassion and concern for others. Likewise, being more extravert will not always lead to being more intelligent, empathetic, or competent at making decisions. Extraversion is related to interpersonal engagement which has special significance in medical education. The more extravert students are, the more likely they are to join in classroom discussions, get involved with teachers and fellow students, ask for academic advice, and do group work. These engagements could also expand their access to information, mentorship, research and

professional development. Therefore, there could be an interaction such that extraversion can help recognize opportunities and engage in active involvement in academic settings. However, the process of identifying and exploiting opportunities are different. Other personality traits, especially conscientiousness, might play a role in continued effort, schoolwork, and the successful completion of work. Thus, extraversion should not be considered an independent predictor of academic and career success, but rather one possible positive facet of personality. [9,15,11]

An additional explanation of the observed gender differences could be provided by the sociocultural influences. Familiarity with parents, school experiences and social norms may influence opportunities for interpersonal interactions and expression of personality traits. The above-mentioned higher extraversion scores of female students could be attributed to the differences in social experiences, interpersonal engagement, or personality traits of the students. Likewise, the higher frequency of communication with parents among the female students could be linked to communication differences in the families of these students. Family communication and parenting experiences and social functioning have been explored in the past literature.[14,17] But the results of the present study are not sufficient to conclude that female students get more affection from parents or that the cultural expectations per se have a direct impact on the students' personality scores. These explanations need to be explored further with the use of specially developed instruments of family relationships and sociocultural factors. Another interesting result was the differences in extraversion rating based on reported extent of physical activity. Students who had participated in any strenuous exercise had higher mean extraversion scores than students who said they had done moderate exercise and this reported post hoc comparison showed there was a difference between these two groups. The relationship with extraversion can be interpreted with respect to the behavioural traits of this personality type, such as activity, enthusiasm and liking for stimulating experiences. More extraverted people might be more likely to indulge in physically active or socially interactive hobbies or pursuits. On the other hand, exercise can offer some benefits with respect to socialization, emotional gratification, and psychological health. Previous studies have provided discussion on the relationship of physical activity and psychological well-being.[6,7,8] However, the present study has a cross-sectional design, which does not allow conclusions as to whether exercise affects extraversion or whether people with high levels of extraversion are more likely to engage in strenuous exercise. Furthermore, there were no objective measures of exercise intensity, frequency or duration in the self-reported exercise categories. Some other significant findings were that differences in extraversion scores were associated with residential status, with mean scores for day scholars being higher than those for students living in hostels. Day Schoolers have more opportunities for contact with family members and more well-developed social networks may be one explanation. The regular contact between family members can provide emotional support, communication and an opportunity to find a familiar environment for interpersonal interaction. Students staying in hostels can also experience a change in their social context such as being separated from family, adapted to independent living and establishing new relationships. These situations can affect the chances of socialising and displaying personality traits. But living in a hostel may also encourage independence, peer interaction and social growth. So, the difference observed cannot be solely attributed to the family contact or residential environment. The results may also be influenced by pre-existing personality characteristics, social support and adaptation to the medical college setting. [14,17] Taken together, the results underscore how much more personal traits and disposition must be taken into consideration in the context of the social and educational setting in which medical students operate. Gender, exercise categories, and living at home are associated with observed differences in extraversion, indicating that there are inter-personal differences among students coming into medical education. The differences could impact participation in school, relationships with peers, communication and opportunities for education. However, a student with a low score on extraversion might exhibit strengths elsewhere such as reflective learning, independent working, and concentration. Thus, the use of personality assessment should be for the purpose of understanding differences and planning effective educational interventions, not to determine student classification as being more or less suited for medical training.

Overall, the present study gives an idea of the personality traits of first-year MBBS students and their differences across different selected demographic, behavioural and residential factors. The results highlight the extraversion as a possible factor in medical education that is related to interpersonal interaction. Medical educators' awareness of such differences can help them create learning environments that are inclusive to all students, improve guidance and counseling for students, and support student academic and professional growth of students with diverse personalities.

Limitations: There are some limitations in the present study. The cross-sectional design does not allow for causal conclusions of the observed associations and convenience sampling from a single medical college restricts the generalizability of the results. Group comparisons may also be affected by the unequal representation of male and female students. In addition, brief self-reported

questionnaires were used for the communication with parents, decision making problems, and level of exercise, which may be subject to interpretation and response bias. Academic performance, clinical skills, professional success, family support, and sociocultural expectations were not directly evaluated in the study. Therefore, caution should be used in drawing educational conclusions about the observed personality differences.

CONCLUSION

The findings from the present study highlight the importance of understanding the personality traits, particularly extraversion among first-year MBBS students and their variations across selected demographic, behavioural and residential factors. The results indicate that the personality trait of extraversion may play a significant role in determining medical students' interpersonal interactions, professional engagement, and effective communication for their future medical practice. Recognizing individual personality differences at the beginning of medical education can help educators create inclusive learning environments, facilitate individualized academic guidance and counseling, and foster students' overall personal, academic and professional development. Therefore, personality assessment may serve as a useful tool in student counseling and support services enabling medical institutions respond effectively to students' diverse needs and promoting their holistic development for professional medical practice.

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